

Errata

There is no better way to start a new year, but by starting an Errata for my new book. Of course I am bitter-kidding. The reason I have to start this errata is not a technical one. I am sure that as more people starting reading this book, this errata will get bigger and technical corrections will be added as well. The reason why I needed to start an errata so soon after the book was released is because one of the most dedicated collaborator's name was left out of the **Acknowledgements** section.

I have no explanation and excuse for how this happened, so I'll add his name here. A special thank you for providing a lot of technical corrections for the previous editions of this book goes to **Süleyman Onur**.

B.1 Book corrections

Chapter 2: Spring Bean Lifecycle And Configuration

In the section **Spring Configuration Classes and the Application Context** section, page 59 the following paragraph is outdated:

X The `@PropertySource` annotation adds a bean of type `PropertySource` to Spring's environment that will be used to read property values from a property file set as argument. The configuration also requires a bean of type `PropertySourcesPlaceholderConfigurer` to replace the placeholders set as arguments for the `@Value` annotated properties.

Configuring properties to be injected with `@PropertySource` no longer requires a bean of type `PropertySourcesPlaceholderConfigurer`. The change was introduced in September 2018, but I missed it. I've been declaring that static bean to support property injection since the first time I did not use it and had to dig into the Spring reference to find out why my configuration doesn't work.

The current configuration in the book is not technically incorrect, just technically redundant. So, I would like to correct the previous affirmation in this errata to:

****** The `@PropertySource` annotation adds a bean of type `PropertySource` to Spring's environment that will be used to read property values from a property file set as argument. If placeholder syntax needs customization a static bean of type `PropertySourcesPlaceholderConfigurer` can be declared and used for this purpose.¹

(Observation submitted by Farid Guliyev)

In the section **Constructor Injection** section, page 74 the following paragraph needs some clarification:

The `@Autowired` annotation provides an attribute named `required` which, when it is set to `false` declares the annotated dependency as not being required. When `@Autowired` is used on a constructor, this argument can never be used with a value of `false`, because it breaks the configuration. It's logical if you think about it, you cannot make optional the only means you have to create a bean right? We'll come back to this topic when we talk about setter injection.

¹Javadoc reference: <https://github.com/spring-projects/spring-framework/blob/master/spring-context/src/main/java/org/springframework/context/annotation/PropertySource.java>

The `@Autowired` annotation can be placed **on a constructor** like this:

```
@Component
public class Car {
    private SteeringWheel steeringWheel;

    @Autowired(required = false)
    public Car(SteeringWheel steeringWheel) {
        this.steeringWheel = steeringWheel;
    }
}
```

In this case the `required = false` is ignored, because constructor-injected components are always returned to the client (calling) code in a fully initialized state, this means that injecting the declared dependency is mandatory.²

If we try to start a Spring application with that bean configuration and no bean of type `SteeringWheel` is found the application won't start and a `UnsatisfiedDependencyException` will be thrown.

But, the `@Autowired` annotation can also be placed **on a constructor parameter** like this:

```
@Component
public class AnotherCar {
    private SteeringWheel steeringWheel;

    public AnotherCar( @Autowired(required = false) SteeringWheel steeringWheel) {
        this.steeringWheel = steeringWheel;
    }
}
```

In this case a `null` value will be injected, because the constructor parameter is not subjected to constructor injection rules.

Spring can be tricked into accepting a missing dependency for a constructor by using the `Optional<T>` Java type. The following piece of code depicts this exact scenario.

```
@Component
public class OptionalPartsCar {
    private SteeringWheel steeringWheel;

    @Autowired
    public OptionalPartsCar(Optional<SteeringWheel> steeringWheelOpt) {
        steeringWheelOpt.ifPresentOrElse(sw
            -> this.steeringWheel = sw, () -> steeringWheel = null);
    }
}
```

Spring is smart enough to insert a `Optional.empty()` value, but this doesn't mean the the resulting bean is fully-configured and thus, we just bent the rules a little. Also using a parameter of type `Optional<T>` is not really recommended for a lot reasons you can Google yourself.

The code in mentioned here is now a part of the official repo, you can find it in sub-project `chapter02/beans`, the `com.apress.cems.beans.required` package. (*Observation submitted by Farid Guliyev*)

In the section **Bean Scopes** section, page 94 the following paragraph is incorrect.

²Official documentation reference about the constructor injection: <https://docs.spring.io/spring/docs/current/spring-framework-reference/core.html#beans-constructor-injection>

X Fun fact: Using `@Scope(value = ConfigurableBeanFactory.SCOPE_PROTOTYPE)` actually does nothing. Because Spring IoC container is not being told what kind of proxy to wrap the bean in, instead of throwing an error, just creates a singleton. So if you really want to customize scope `proxyMode` attribute must be set.

It should be:

****** Fun fact: Using `@Scope(value = ConfigurableBeanFactory.SCOPE_PROTOTYPE)` does not seem to do very much. Because Spring IoC container is not being explicitly told what kind of proxy to wrap the bean in, it just doesn't. The `proxyMode` attribute has a default value which is `ScopedProxyMode.DEFAULT`, which is equal to `ScopedProxyMode.NO`, unless explicitly configured otherwise. So if you really want to customize scope `proxyMode` attribute must be explicitly set. Otherwise the scope will be applied to the bean, and a `prototype` scoped bean when injected into a `singleton` scoped bean will act just like a singleton bean. Only when a `prototype` scoped bean is being repeatedly requested from the context its scope will become obvious.

And because of the previous affirmation the following paragraph is incorrect as well.

X Which value should be used for the `proxyMode` in the previous implementation, to make sure that will always get a fresh new instance when the bean is accessed? If you really want to delegate that decision to Spring, you can use `proxyMode = ScopedProxyMode.DEFAULT` and the container will play it safe and create a CGLIB-based class proxy by default. But if you want to make the decision, just look at the class code. If the class implements an interface, then `proxyMode = ScopedProxyMode.INTERFACES` can be used. But if the class does not implement an interface, the only possible option is `proxyMode = ScopedProxyMode.TARGET_CLASS`.

And should be corrected to:

****** Which value should be used for the `proxyMode` in the previous implementation, to make sure that will always get a fresh new instance when the bean is accessed? If you want to make the decision, just look at the class code. If the class implements an interface, then `proxyMode = ScopedProxyMode.INTERFACES` can be used. But if the class does not implement an interface, the only possible option is `proxyMode = ScopedProxyMode.TARGET_CLASS`.

(Observation submitted by Farid Guliyev)

In the section **Bean Scopes** section, page 100 the following paragraph is slightly incorrect.

X Starting with Java 8 interfaces can be declared to contain *private* and *default* methods.

****** Starting with Java 8 interfaces can be declared to contain *default* methods and in Java 9 *private* methods were introduced.

(Observation submitted by Farid Guliyev)

Chapter 3: Testing Spring Applications

In the section **Testing Spring Applications** section, page 247 the `SpringUnitTest` class uses a combined approach using JUnit4 and JUnit5 components to create a Spring configuration containing Mockito mock beans. When I was working on the book at the beginning of the year 2019 that test used to work. After upgrading JUnit 5 and Spring to the most recent versions, that test no longer works as expected. I cannot change the code in the book, but I already updated the class on the official GitHub repository to the following implementation:

```
package com.apress.cems.jupiter.mock;
...
@ExtendWith(MockitoExtension.class)
public class SpringUnitTest {
    public static final Long PERSON_ID = 1L;
    PersonRepo personRepo;

    // mocking the database
    @Mock
    JdbcTemplate jdbcTemplate;

    @BeforeEach
    void init() {
        personRepo = new JdbcPersonRepo(jdbcTemplate);
        Mockito.when(jdbcTemplate.queryForObject(anyString(),
            any(PersonRowMapper.class), any(Long.class))).thenReturn(new Person());
    }

    @Test
    public void testFindByIdPositive() {
        assertTrue(personRepo.findById(PERSON_ID).isPresent());
    }
}
```

(Observation submitted by Farid Guliyev)